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JUN 20 2008

Application No. 10/579,444  
Amendment dated June 16, 2008  
Reply to Office Action of March 27, 2008

Page 4

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended): A pipe molding system for producing plastic pipe, said system including a plurality of moving first mold block sections and second moving mold block sections,

\_\_\_\_\_ the first mold block sections closing with the second mold block sections to form a moving mold tunnel,

\_\_\_\_\_ means for feeding molten plastic to the first and second mold blocks sections to form the plastic pipe, and

\_\_\_\_\_ a cooling plug for setting the plastic pipe in the moving mold tunnel;

\_\_\_\_\_ said cooling plug being divided into a first stage and a second stage;

\_\_\_\_\_ said first stage including a cooling circuit and a temperature control arrangement that cooperate to remove ~~for removing~~ sufficient heat from the plastic pipe to partially set the plastic pipe without excessive cooling thereof;

\_\_\_\_\_ said second stage including a cooling circuit and continuing to remove heat from the pipe to further set the plastic pipe; and wherein

\_\_\_\_\_ said first stage ~~being~~ is separately controlled to be responsive to changing conditions of said first stage.

2. (original): A pipe molding system as claimed in claim 1 wherein said cooling plug is divided into two separate cooling plug sections corresponding to said first stage and said second stage.

3. (original): A pipe molding system as claimed in claim 2 including a thermal break member between said cooling plug sections.

4. (currently amended): A pipe molding system for producing plastic pipe, said system including

Application No. 10/579,444  
Amendment dated June 16, 2008  
Reply to Office Action of March 27, 2008

Page 5

\_\_\_\_\_ a plurality of moving first mold block sections and second moving mold block sections,

\_\_\_\_\_ the first mold block sections closing with the second mold block sections to form a moving mold tunnel,

\_\_\_\_\_ means for feeding molten plastic to the first and second mold blocks sections to form the plastic pipe, and

\_\_\_\_\_ a cooling plug for setting the plastic pipe in the moving mold tunnel,

\_\_\_\_\_ said cooling plug comprising a first cooling stage having a separate first cooling circuit and a second cooling stage having a separate second cooling circuit,

\_\_\_\_\_ said first cooling circuit including a first control arrangement for maintaining said first cooling stage within a first temperature range which cools the plastic pipe without damage from excessive cooling and reduces the temperature of the plastic pipe;

\_\_\_\_\_ said separate second cooling circuit including a control arrangement for continuing to removing heat from the plastic pipe for further setting of the plastic pipe.

5. (currently amended): A pipe molding system as claimed in claim 4 wherein said first control arrangement includes an arrangement for monitoring the temperature of said first cooling stage and adjusting the flow of a cooling medium circulated through said first cooling circuit in accordance with the temperature of said first cooling stage.

6. (original): A pipe molding system as claimed in claim 5 wherein said second control arrangement includes an arrangement for monitoring the temperature of said second cooling stage and adjusting the flow of a cooling medium circulated through said second cooling circuit in accordance with the temperature of said second cooling stage.

7. (currently amended): A pipe molding system as claimed in claim 4 wherein said first cooling stage includes a reservoir of a cooling medium circulated through said first cooling stage,

Application No. 10/579,444  
Amendment dated June 16, 2008  
Reply to Office Action of March 27, 2008

Page 6

\_\_\_\_\_ said reservoir including a temperature sensor and a chilling arrangement for maintaining the temperature of the cooling medium within a predetermined range, and a pump and control arrangement for circulating sufficient cooling medium through said first cooling stage to maintain the temperature range of the first cooling stage regardless of the shape of the product as it passes over the first cooling stage.

8. (original): A pipe molding system as claimed in claim 7 including a temperature sensor for monitoring the temperature of said first cooling stage and a variable control valve in said first cooling circuit with said variable control valve being varied in accordance with monitored temperature of said first cooling stage.

9. (currently amended): A pipe molding system for producing plastic pipe, said system including

\_\_\_\_\_ a plurality of moving first mold block sections and second moving mold block sections,  
\_\_\_\_\_ the first mold block sections closing with the second mold block sections to form a moving mold tunnel,  
\_\_\_\_\_ means for feeding molten plastic to the first and second mold blocks sections to form the plastic pipe, and  
\_\_\_\_\_ a cooling plug for setting the plastic pipe in the moving mold tunnel,  
\_\_\_\_\_ the plastic pipe having a pipe wall with a first wall portion which travels over and is in contact with said cooling plug and a second wall portion which travels over and is spaced outwardly away from said cooling plug,  
\_\_\_\_\_ the first wall portion transferring heat directly to said cooling plug;  
~~\_\_\_\_\_ said system including and providing a first temperature control to prevent excessive plug cooling as the first wall portion travels over the cooling plug,~~  
\_\_\_\_\_ said system including a second temperature control which operates to replace the first temperature control in preventing the excessive plug cooling as the second wall portion of the pipe wall travels over the cooling plug.

10. (original): The pipe molding system of claim 9 wherein said cooling plug is cooled by a supply of chilled water, said second temperature control comprising a

Application No. 10/579,444  
Amendment dated June 16, 2008  
Reply to Office Action of March 27, 2008

Page 7

water flow adjuster to reduce flow of the chilled water to the cooling plug when the second wall portion of the pipe wall travels over the cooling plug.

11. (original): The pipe molding system of claim 9 wherein said cooling plug is cooled by a supply of chilled water, the chilled water being at a first temperature as the first wall portion travels over the cooling plug, said second temperature control comprising a water temperature control which raises temperature of the chilled water above the first temperature as the second wall portion of the pipe wall travels over the cooling plug.

12. (original): The pipe molding system of claim 9 wherein said cooling plug is internally cooled by a supply of chilled water, said second temperature control comprising a heater externally of and directing heat onto said cooling plug when said second wall portion of said pipe travels over said cooling plug, said heater being inactive when said first wall portion of the internal wall of the pipe travels over the cooling plug.

13. (original): The pipe molding apparatus of claim 9 wherein said system includes means to produce vacuum at the cooling plug when the first wall portion travels over the cooling plug to assist in maintaining the first wall portion in contact with the cooling plug, the means to produce vacuum being turned off when said second temperature control is operated as the second wall portion of the internal wall of the pipe travels over the cooling plug.

14. (currently amended): The pipe molding system of claim 9 wherein said system includes means to produce a vacuum at the cooling plug and said cooling plug comprises first and second plug sections;

\_\_\_\_\_ said first plug section being subjected to the vacuum and being temperature controlled only by the first temperature control of the heat of the first wall portion to prevent the excessive plug cooling as the first wall portion travels over the first plug section while, at the same time, the second plug section is free of the vacuum and is subjected only to the second temperature control to prevent the excessive plug cooling as the second wall portion of the internal wall of the pipe

Application No. 10/579,444  
Amendment dated June 16, 2008  
Reply to Office Action of March 27, 2008

Page 8

travels over the second plug section, and then as the pipe moves along the mold tunnel, said first plug section being free of vacuum and being temperature controlled only by the second temperature control to prevent the excessive plug cooling as the second wall portion of the internal wall of the pipe travels over the first plug section while, at the same time, the second plug section is subjected to the vacuum and is temperature controlled only by the first temperature control of the heat of the first wall portion as the first wall portion of the internal wall of the pipe travels over the second plug section.